

REMARKS

I. OVERVIEW

Claims 1-52 are pending in the present application. A restriction requirement and species election requirement have been entered against the claims. This responds to that action.

II. RESTRICTION REQUIREMENT

Applicant respectfully traverses the restriction requirement for the following reasons.

Each of the independent claims 1, 20, 30, and 40 have similar material limitations. In fact, independent method claim 1 and independent claim 20 have closely parallel limitations. The fact that one is a method claim and one is an apparatus claim is not controlling. Claim 20, the apparatus claim, essentially recites there are emitters and detectors and a master controller. Method claim 1 likewise calls out those essential components. Apparatus claim 20 describes a process that is carried out in the controller which includes generating an output signal if one of two conditions occurs. The first is where all emitters are off and a detector triggers at a threshold level. The second is when one emitter is on and at least one detector does not trigger. This is the same regimen set forth in method claim 1. The output signal is then communicated to the controller. This is the same in claims 20 and 1.

As specifically described in Applicant's specification, this combination of steps describes one aspect of the claimed invention. A first time period turns all emitters off. If a detector triggers, it is assumed the detector is defective because it should not be indicating receipt of any electromagnetic energy from any emitter. This is a self testing step that is a part of both independent claims 1 and 20. The second condition is where one emitter is on. If any detector does not trigger, it is assumed a vend has occurred. In other words, all the detectors should "see" the emitter that is turned on and trigger because they are receiving electromagnetic energy. However, if one detector does not trigger, it is assumed it was blocked by the falling of a vended item. It is therefore assumed a vend has occurred. This step is the same in claims 1 and 20.

Therefore, there is no materially different methodology in those claims. Any differences caused by claim 20 being an apparatus claim are not material differences. Claim 20 does describe supports for both emitters and detectors. But this is not a significant part of the invention and merely describes structure for the context of the apparatus. In Table A below are claims 1 and 20 side-by-side. Parallel terms in each claim are interconnected showing why these claims should not be restricted from one another. Reconsideration and removal of the restriction requirement for claims 1 and 20, and their dependent claims, is respectfully requested.

TABLE A

<p>1. A method of providing reasonable assurance of a completed vend of a vendible item in a vending machine comprising:</p> <p>a. placing a set of optical <u>emitters</u> at spaced apart locations on one side of a dispensing area of the vending machine, the emitters each having on and off states, when in the on state emitting optical energy of predetermined characteristics;</p> <p>b. placing a set of optical <u>detectors</u> at spaced apart locations on a generally opposite side of the dispensing area, each detector having on and off states, the on state caused by sensing of at least a threshold level of optical energy of said predetermined characteristics;</p> <p>c. holding all emitters in the off state for a time period, and if any detector turns on, generating an output signal;</p> <p>d. turning a first emitter of the set on for a time period, and if any detector does not turn on, generating an output signal;</p> <p>e. repeating steps c. and d for each other emitter of the set;</p> <p>f. communicating any output signal to a master <u>controller</u> of the vending machine.</p>	<p>20. An apparatus to provide reasonable assurance of completion of a vend of a vendible item from a vending machine, comprising:</p> <p>a. a first support member upon which is mounted a set of optical <u>emitters</u> in spaced apart locations;</p> <p>b. a second support member upon which is mounted a set of optical <u>detectors</u> in spaced apart locations;</p> <p>c. a controller operatively connected to each emitter and detector, the controller programmed to:</p> <p>i. control on and off of individual emitters for a period of time in a predetermined sequence, separated by a period of time all emitters are off;</p> <p>ii. monitor a triggering threshold of each detector, the triggering threshold adapted to sense at least a certain level of optical energy of the type emitted by the emitters;</p> <p>iii. generates an output signal if any detector triggers:</p> <p>1. any detector triggers during any period all emitters are off; or</p> <p>2. any detector does not trigger during any period an emitter is on;</p> <p>d. an interface adapted for communication of the output signal to a master <u>controller</u> board of a vending machine.</p>
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In a similar manner, claims 30 and 40 are parallel in nature. Like described above regarding claims 1 and 20, claims 30 and 40 each require a set of emitters and a set of detectors. The major difference between these claims and claims 1 and 20 is they do not define the steps (d) and (c)(iii)(1) of claims 1 and 20 respectively, where all emitters are off and a check is made of whether any detector triggers. These claims 30 and 40 check whether any detector does not trigger during a time an emitter is on. If that occurs, it is assumed a vend has occurred. Below side-by-side in the Table B are claims 30 and 40. Certain terms have been hi-lighted and interconnected which show the parallel nature of these claims.

TABLE B

<p>30. A method of optically monitoring for a vend of a vendible product in a vending machine comprising:</p> <ul style="list-style-type: none"> a. spacing out several <u>emitters</u> on one side of a vend area of the vending machine, the emitters adapted to emit electromagnetic energy of a restricted beam width and predetermined wavelength; b. spacing out several optical <u>detectors</u> on another side of the vend area, the optical detectors adapted to turn on when receiving electromagnetic energy of the predetermined wavelength over a threshold value; c. upon a vend instruction to the vending machine monitoring for a vend by beginning a algorithm adapted to: <ul style="list-style-type: none"> i. turning on and then off the emitters in a predetermined sequence for predetermined time periods; ii. checking if all detectors are on during the time periods any emitter is on; d. if any detector does not turn on during the time period any emitter is on, generating a signal to the vending machine indicative that a vend has occurred. 	<p>40. An apparatus for optically monitoring optically monitoring for a vend of a vendible product in a vending machine comprising:</p> <ul style="list-style-type: none"> a. a set of several <u>emitters</u> spaced apart on one side of a vend area of the vending machine, the emitters adapted to emit electromagnetic energy of a restricted beam width and predetermined wavelength; b. a set of several optical <u>detectors</u> spaced apart on another side of the vend area, the optical detectors adapted to turn on when receiving electromagnetic energy of the predetermined wavelength over a threshold value; c. a microprocessor operatively connected to each emitter and detector and having a program which, upon a vend instruction to the vending machine monitoring for a vend by beginning a algorithm adapted to: <ul style="list-style-type: none"> i. turning on and then off the emitters in a predetermined sequence for predetermined time periods; ii. checking if all detectors are on during the time periods any emitter is on; iii. if any detector does not turn on during the time period any emitter is on, generating a signal to the vending machine indicative that a vend has occurred.
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Claims 30 and 40 therefore are essentially parallel in nature and do not have material differences such that they are defined independent and distinct inventions.

Furthermore, there should not be any restriction between claims 1 and 20 and claims 30 and 40. Claims 30 and 40 are very similar to claims 1 and 20, but leave out one step, the checking whether any detector triggers when all detectors are off. Therefore, claims 30 and 40 are essentially claiming the same things as generic claims 1 and 20 but adding both a very similar additional step. Stated differently, claims 30 and 40 might be characterized as species of generic claims 1 and 20.

It is therefore also respectfully submitted that restriction based on claims 30 and 40 be withdrawn and that all claims proceed for examination in this application.

To summarize, generally all claims in this application include the common theme that a set of emitters and detectors are placed to try to detect a vendable event and report it to a controller for the vending machine. In one generic embodiment, a report is sent to the controller that a vend has occurred only when an emitter is on and at least one detector does not trigger. This language is in all independent claims 1, 20, 30 and 40. The theory is that one emitter is energized at a time. All detectors should receive electromagnetic energy from each emitter when it is on and all detectors should therefore trigger each time any emitter is on. If a detector does not, it is assumed it was blocked by a product falling through between the emitters and detectors and thus a vend is assumed to have occurred. Again, this is in each independent claim 1, 20, 30 and 40.

Claims 30 and 40 add the additional aspect that in between individual emitters being turned on or even at a beginning time, all emitters are off. If a detector triggers, it is assumed it is malfunctioning because it should not be receiving any electromagnetic energy. This is a self-test, which is one improvement according to one aspect of the invention. This makes the detection of an actual vend more likely to be accurate because it is continuously checking to see if the detectors are operating properly. In other words, if a detector was falsely triggering even in the absence of electromagnetic energy, the system of Applicant's claims could miss a vend because it

assumes a detector would not trigger if it was blocked. If the detector was malfunctioning and triggered even if it was blocked, the method and apparatus according to the present claimed invention would not report a vend. Thus, these concepts are related and claims 1 and 20 are generic to claims 30 and 40 and all claims should be maintained in the above-identified application.

III. PROVISIONAL ELECTION

In the event the restriction requirement maintained, Applicant provisionally elects with traverse Group I, claims 1-19, 30-39 and 50-52.

IV. PROVISIONAL SPECIES ELECTION

If the restriction requirement and species election is maintained, Applicant provisionally elects with traverse Species II under Group I. It is respectfully submitted that at least the following claims read on Species II of Group I: claims 1-5, 8-19, 30-37, 39, 50-52.

It is further more pointed out that independent claim 50 has similar limitations regarding checking if the detectors are operative and assuming when a vend has occurred as claims 1 and 20.

V. CONCLUSION

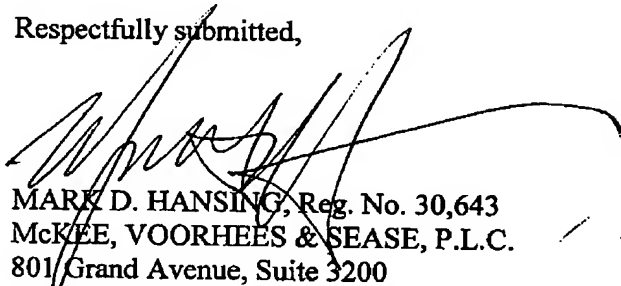
It is respectfully submitted all matters raised in the restriction requirement have been addressed and reconsideration is respectfully requested.

This is a request under the provision of 37 CFR § 1.136(a) to extend the period for filing a response in the above-identified application for one month from May 3, 2006 to June 3, 2006. Applicant is a small entity; therefore, please charge Deposit Account number 26-0084 in the amount of \$60.00 for one month to cover the cost of the extension. Any deficiency or overpayment should be charged or credited to Deposit Account 26-0084. It is not believed that any additional fees or petitions for extension of time are required for entry of this response but if

any have been inadvertently overlooked, please consider this a request therefore and charge any required fee to Deposit Account No. 26-0084.

Reconsideration is respectfully requested.

Respectfully submitted,



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